**Headline:** The Inspiring Movement to Build for Climate Resiliency

**Teaser:** Architects and everyday people are teaching each other to build spaces for community and climate resilience using local, natural materials.

By April M. Short

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**[Article Body:]**

The way we build our structures and organize our cities can have a significant impact on the way we live, interact, and even survive these complex times on our planet. As the realities of climate change increase the frequency and scale of natural disasters in communities around the world, architecture needs to support climate resilience. Architecture can do this not just via the design of structures but also by supporting community engagement and empowerment. Around the world, creative architects and builders are innovating resilient and Earth-friendly ways to craft structures and organize communities—and they are teaching these practices to other people.

**Revillaging Our Cities for Climate Resilience**

There is an ongoing “revillaging” movement that seeks to shift the way we build and design the layouts and interactions of our modern world to combat mental illness, housing, and climate disasters, as detailed in my 2020 [article](https://www.salon.com/2020/03/08/why-humanity-should-look-to-its-roots-as-we-revillage-our-towns-and-cities_partner/) produced through the Independent Media Institute. The article explores the work of urban architect Mark Lakeman, who in the 1990s began working on the concept of revillaging, which seeks to reconstruct urban spaces and the way we relate within them, from the ground up. Ensuring all of the needs of a given resident can be met within a walkable distance by redesigning the grid to operate at a “human scale,” is core to revillaging. For decades, he worked to revillage his home city of Portland, Oregon, by altering (and at times [breaking](https://tinyurl.com/u734uqq)) city zoning laws to carve out public squares and gathering spaces, art projects like Portland’s iconic [intersection street paintings](https://cityrepair.org/street-painting-examples), and other elements of permaculture design. Lakeman continues to inspire change in city structures around the world via lectures, education, and groundbreaking urban design projects.

He and his team worked on part of the Rockefeller Foundation’s 2013 [100 Resilient Cities](https://www.rockefellerfoundation.org/100-resilient-cities/) project, which asked designers to send in their competing plans to address climate change. Lakeman’s team created a revillaging design for the Bay Area city of Vallejo, roughly 30 miles north of San Francisco—an area that is likely to become increasingly vulnerable to the impacts of rising sea levels due to climate change. Block by block, his team demonstrated a revillaging of the city’s entire infrastructure to adapt places like schools into community centers and create various nodes of connection within walking distance.

“The vision for Vallejo—and it really should be everywhere—is to enable the transition of where people are housed into a more dynamic environment,” Lakeman said during the [2020 interview](https://www.salon.com/2020/03/08/why-humanity-should-look-to-its-roots-as-we-revillage-our-towns-and-cities_partner/). “We added things called spot zones where living and working becomes legal, allowing people to build right up to their property lines and augment their homes with spaces that allow for live-work functions, so that people don’t have to transit the landscape to go and get their needs met. They can actually just walk to a neighborhood node. … Whether it’s Vallejo or anywhere, we’re not going to get on the climate change program without relating it to all these other things which are urgent… like equity, social justice, and fundamental accessible housing.”

**Communities Learn to Build Climate Resilience in Pakistan**

In many communities around the world, the devastation of climate change-related disasters has already hit home. For example, hundreds of thousands of people in Pakistan have been displaced due to natural disasters in recent decades, beginning with the 2005 magnitude 7.6 [earthquake](https://www.britannica.com/event/Kashmir-earthquake-of-2005) in northern Pakistan. The quake killed [around 73,000](https://www.adb.org/sites/default/files/institutional-document/173143/in282-15.pdf) people and left more than 2.8 million homeless.

Following the earthquake, Yasmeen Lari—who retired from an esteemed career as the first-ever female Pakistani architect in 2000—came out of retirement to “go and help,” the people of her country, she told the Guardian in a 2020 [interview](https://www.theguardian.com/artanddesign/2020/apr/01/yasmeen-lari-pakistan-architect-first-female-jane-drew).

“I had no idea what I could do as an architect,” she says in the [article](https://www.theguardian.com/artanddesign/2020/apr/01/yasmeen-lari-pakistan-architect-first-female-jane-drew). “I’d never done any disaster work, or any projects in the mountains. I had no workforce; I’d given up my practice. But I found that, if you do something beyond your usual comfort zone, then help will always come.”

She began working with communities to rebuild their homes using debris, mud, stone, lime—and whatever natural elements and materials were available. This was the prelude to what would become decades of work at the confluence of [architecture](https://en.wikipedia.org/wiki/Architecture) and [social justice](https://en.wikipedia.org/wiki/Social_justice).

She began to do groundbreaking work through [Heritage Foundation of Pakistan](https://en.wikipedia.org/wiki/Heritage_Foundation_Pakistan), a UN-recognized NGO that Lari co-founded in 1980, which focuses on conservation of cultural heritage and historic architecture, and humanitarian relief projects in poor and underserved communities throughout Pakistan. Lari trained as an architect in London’s School of Architecture, Oxford Polytechnic—which is now Oxford Brookes University—and in 2023 she received the [Royal Gold Medal](https://www.architecture.com/awards-and-competitions-landing-page/awards/royal-gold-medal/Royal-Gold-Medal-2023) from the Royal Institute of British Architects (RIBA). She was also awarded the prestigious [Fukuoka Prize](https://fukuoka-prize.org/en/) in 2016.

Lari was surprised to receive the 2023 award, according to the [RIBA Journal](https://www.ribaj.com/culture/profile-yasmeen-lari-architect-humanitarian-pakistan-poverty-homeless-shelters-limecrete), which quoted her as saying, “I never imagined that as I focus on my country’s most marginalized people—venturing down uncharted vagabond pathways—I could still be considered for the highest of honors in the architectural profession.”

A [video](https://www.youtube.com/watch?v=85nDCxBxJiw) by RIBA created following her receipt of the award details Lari’s work since 2005 to teach Pakistani communities—and in particular women—to build climate-resilient structures that are environmentally friendly and made from natural materials that are readily available to the communities. Many of the communities are taught how to build structures that are constructed by women, who are dubbed “barefoot eco entrepreneurs,” and have been trained in the method Lari developed.

She shares in the [video](https://www.youtube.com/watch?v=85nDCxBxJiw) that after the 2005 earthquake, she devised a system that relies on empowering people rather than treating them as victims. The system promotes certain principles, among them is what she calls the four zeros: zero carbon, zero donors, zero waste, and zero poverty. Also key to the system are some “noes”: no to handouts, no to cement, and no to steel. The latter two noes are because cement and steel “are the most destructive architectural materials for the environment,” Lari [says](https://www.youtube.com/watch?v=85nDCxBxJiw).

Lari learned how to make earthquake-resilient structures that wouldn’t be life-threatening, and through her program, began to teach other people how to build for themselves. Her main building materials became bamboo, earth, and lime, she shares, noting that with these materials, “[y]ou can have infinite number of possibilities, and they’re so safe and comparatively really inexpensive,” she [says](https://www.youtube.com/watch?v=85nDCxBxJiw) in the video. She also notes that bamboo is an incredibly resilient building material that sequesters so much carbon that it makes everything in these building projects carbon neutral.

The video also details how in 2010, when Pakistan experienced [massive flooding](https://earthobservatory.nasa.gov/features/PakistanFloods) from north to south, these bamboo structures held strong.

A woman named “Champa,” a barefoot eco entrepreneur, shares in the video that many houses were destroyed in the flood but not in the village shown in the video, which were built using Lari’s method. “These houses are very different,” as Champa speaks, the frame shows a circle of thatch roof structures from above, some with solar panels on top of them. “They are safe from the floods; they are built higher and stronger,” she says.

Harriet Wennberg, the executive director of [INTBAU](https://www.intbau.org/) (The International Network for Traditional Building, Architecture and Urbanism—a global network promoting traditional building, architecture, and urbanism—[says](https://www.youtube.com/watch?v=85nDCxBxJiw) in the video that Lari is “a great advocate… for human agency” and has enabled people to learn how to build for themselves.

She notes that while much of the working concept Lari has created has the potential to be “replicable and relevant elsewhere,” it is “those local adaptations” and the idea of using materials that exist in the place where people are building, “that are key.”

Senator Nasreen Jalil, deputy convener of the Muttahida Quami Movement Pakistan, [notes](https://www.youtube.com/watch?v=85nDCxBxJiw) in the video that while visiting the villages where Lari’s carbon-free bamboo shelters have been built, one is “amazed at the way they have been designed, planned, and just the general outlook. This has become more important today because the whole world is focused on having a better environment and making it carbon-free.”

Lari [says](https://www.youtube.com/watch?v=85nDCxBxJiw) that the reason all of her projects have been successful is “because women were involved.” She points to her Pakistan *chullah* (stove) design, more than 100,000 or so of which had been built in villages throughout Pakistan, primarily by housewives. No money is given to communities to build these “self-built, earthen” stoves, she shares. “They do it themselves. … The beauty is that you can train people, and combined with their own skills what they’ve had… it’s a magic formula.”

**A Natural Building Collective in Portugal Teaches Women to Build**

“It is vital now, more than ever, that we make space for women in this male-lead industry and create a shift in this outdated patriarchal system whilst also moving away from, our planet destroying, building industries, and methods.” This is an excerpt from the website for the [Women’s Natural Building Collective](https://www.womensnaturalbuilding.org/) (WNBC) in Portugal. Like Lari, the collective is working to empower women to build using natural materials. They offer in-person training to women with little to no building experience, who come from around the world—often from Australia, the U.S., Europe, and beyond—to learn. The women who attend are between their 20s and late 70s in age and often have little in common beyond an urge to learn to build—a skill set women in particular are seldom encouraged to pick up.

“I feel most women on this planet, like me, would never believe they could build their own house,” says Lola Byron, co-founder of the Women’s Natural Building Collective. “It’s not a script we are given. We carved a very different narrative from generations before us that keeps us clean and tidy, that forces us into a box with specific roles and responsibilities, that don’t serve us anymore or never have. I feel we are breaking down the walls of confinement and it’s extremely liberating. I just want more and more women to feel it, the pride and accomplishment, the connection and fun.”

She adds that she is consistently impressed by what 12 women with no building experience can accomplish during their week-long courses, like building a timber frame earth house from the ground up. Beyond learning a new and empowering skill set, Byron says the women who attend these courses often have another motive in common.

“There have been students, teachers, IT specialists, web developers, massage therapists, marketing directors, yoga instructors, and so on, but it does feel like there is an underlying common thread: a want and need to make a change,” she says. “We hear very often of people being sick and tired of the ‘rat race’ and wanting to step out of a social system they no longer trust, where they don’t feel safe or seen. They share a feeling of being ‘burned out’ by the pressures of life and work, and of fearing for the future of the planet. They are looking for ways they can contribute to a healthier future.”

The Women’s Natural Building Collective not only uses local, natural materials but the houses are also specifically designed to work in harmony with their surrounding environment.

“We study the climate and the external energies that will affect the house,” Byron says. For example, the collective takes into consideration where the water flows when it rains, and where the sun path will be throughout the year in relation to each building. They ask how the roof, walls, and windows will need to respond to these elements in order to control the temperature inside the house.

“By doing so we can eliminate the need for fossil fuels to heat and cool the home,” she says.

Byron found her way to starting the building collective in a roundabout way. She began as an artist, studying fine art with a specialization in sculpting, then taught art in Cardiff, Wales. However, she says there was a persistent feeling that something was missing.

“I had everything I was told you need to have to feel you have accomplishments in life—job, car, and partner—but I felt a churning of dissatisfaction and emptiness in me, this feeling of ‘is this it?’” In 2010, she saw an ad for a Permaculture Design Course and signed up for it on a whim.

“It changed my life entirely,” she says. “It was like someone had opened a hidden door into a beautiful and hopeful new world where things could work harmoniously and in tune with nature; where collaboration outweighed competition; and where people were doing what they could to create a better and brighter future.”

During the course, there was an afternoon focused on natural building and Byron was “hooked.” She had a “eureka moment” realizing she could put her sculpting skills to use to create “a functional, practical, and living piece of art that could also bring attention to the housing crisis and the destructive building industries,” rather than to create something that would sit on a gallery shelf.

Following the course, an instructor offered Byron a chance to rebuild a damaged earth structure at a festival. When she replied that she had no idea how to do the job, the instructor replied, “Of course you do, just mix some mud and feel it out!” This gave her the courage to try, and she spent two months rebuilding the structure and learning as she went along.

“I felt an indescribable intuitive connection with the earth I was building with, like it was a practice I already had the tools for, like it was engraved in my DNA from my ancestors who had once created shelters with earth,” she says. “Now, I was tapping into that hidden knowledge and it felt amazing, liberating, and empowering.”

“We have the power to move mountains together and it’s an incredible feeling,” she says.

Following the experience, she says all she wanted to do was learn more about building, so she “quit everything” and went to Southeast Asia on a journey to learn what she could. She settled in Thailand where she shadowed local village builders, staying in their earth homes and spending months observing and practicing their techniques.

“What I realized was that to become a better builder, I had to keep on building,” she says. “I needed to listen and connect with the raw materials. The more I worked with [the materials], the more I understood their limitations and potentials.” Her skills and confidence grew as she studied and practiced with international builders, and she eventually landed a dream job as a natural building manager with a permaculture project in northern Thailand.

Byron spent nine years in Thailand where she fell in love and gave birth to her daughter, who is now nine. Eventually, her family moved to Portugal and found a community of like-minded people. She began running natural building workshops until the COVID-19 pandemic started. When all work was paused, she worked with a neighbor to build a straw bale and cob house that needed to be finished. It was the first time she worked on a team of just two women—herself and the neighbor.

“It was just the two of us together, building, sharing, crying, laughing, and growing. The energy was incredible,” she says. “We held a couple of ‘workdays’ where unintentionally only women turned up, maybe six or seven of us, working with so much joy, playing music, sharing good food, laughs and sometimes tears, facing challenges on the build together, seeing our strengths and encouraging one another. As we stomped the mud with our bare feet, we organically created a circle as we worked, where our problems, challenges, and life stories could be safely heard and held.”

Byron says it was then that she knew the group was creating “something very special.”

“And I knew I wanted more,” she says. So, the WNBC was born.

“It’s a long story but this is how the WNBC was born: from connection, sisterhood, and empowerment; from a deep driving force to create change in our lives, and for the lives of our children’s children.” The collective, she says, came together from a shared drive to “stand up and do something, to push the boundaries of what is acceptable, and to break stereotypes.”

She shared the idea to create a women’s building company, to design and build ecological houses, and to train others to build, with the women she had been building with. Everyone loved the idea.

“I learned how to create a website, we sat and laid the foundations of what was fundamentally important for us, we got our first job, and we have been growing and building ever since,” Byron says.

As the housing crisis is skyrocketing around the world and so many people are unable to afford a home or basic shelter, Byron says she hopes natural building can help inspire solutions.

“Natural building uses the local materials at hand and the price [of building] is drastically reduced,” she notes. “I feel like the challenge at the moment is that cement/concrete is being used as a symbol of wealth in developing countries; if you have a concrete house you are seen as being more westernized. We are seeing so many natural structures being torn down and replaced with brick and concrete houses that don’t work with the climate and are uncomfortable to live in.”

She says their collective wants to help educate people on how natural construction is not a primitive way to build— it is a necessary one.

For those interested in bringing natural building practices to their own communities, she says the best place to start is to look at the building methods and materials people were using in the area prior to concrete. Often, she says, those structures will respond better to the landscape and the climate. From there, she recommends finding other people who are still practicing these techniques and learning the skills to build.

“I never really realized how sickeningly destructive our building industries are, how much waste and greenhouse gas emission they produce, the toxic materials they use, the capitalist system that has been created in the housing market, and so on,” she says. “Once you look into it, it’s really depressing. And we can’t continue like this, with this exponential growth to build more and more. It’s not sustainable and it’s also not necessary.”

She feels that for the survival of our species, we humans will need to change our building methods and build more naturally and consciously.

The [WNBC](https://www.womensnaturalbuilding.org/courses) has several workshops planned for 2024, as well as some small build projects, Byron says.

“We have the solutions,” she says. “That’s why we continue to build, teach, and share this knowledge.”